

**Notice of Allowability**

Application No.

10/618,757

Examiner

Charles Chow

Applicant(s)

KUWAHARA ET AL.

Art Unit

2685

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 2/3/2006.
2. ☐ The allowed claim(s) is/are 2-5.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/364,269.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

### Detailed Action

1. The office action is for amendment received on 2/03/2006.

### Allowable Subject Matter

2. The following is an examiner's statement of reasons for allowance:

Claims 2-5 are allowed over the prior art of record, the prior art fails to teach singly, particularly, or in combination, or rendering in obviousness.

Applicant has canceled claim 1 and has amended independent claim 2 with allowable features [ page 6 of applicant amendment] for

the maximum beam in a direction of first uplink signal from one mobile station, and having a **null in a direction** of a mobile station other than said one of the plurality of mobile stations which transmitted a second uplink signal,

[ other than the particular mobile which transmits a second uplink, in lines 2-4 of page 6 of applicant amendment 2/3/2006], **together with the features of the antenna weight determining, the**

wherein the downlink array weight is provided according to transmission power control information for a plurality of downlinks to said plurality of mobile stations.

The prior arts fail to teach singly, particularly, or in combination, for the above mentioned allowable features for a method for a base station to communicate with a plurality of mobile stations via an array antenna comprising the steps of:

receiving using said array antenna, a plurality of uplink signals transmitted from said plurality of mobile stations;

providing a downlink array weight for transmitting downlink signals to one of the plurality of mobile stations such that said downlink array weight represents an antenna pattern

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having the maximum beam in a direction of said one of the plurality of mobile stations which transmitted a first uplink signal received using said array antenna, and

having a null in a direction of a mobile station other than said one of the plurality mobile stations which transmitted a second uplink signal received using said array antenna,

wherein the downlink array weight is provided according to transmission power control information for a plurality of downlinks to said plurality of mobile stations.

The dependent claims 3-5 are also allowable due to their dependency upon the independent claim and comprising additional claimed features.

The closest prior art from **Agee (US 2002/0122,465 A1)** teaches forming of antenna null pattern at the second link from beam B, instead of beam A of remote station A, Fig. 13, paragraph 0238], the weights are spreading codes to distribute data over a plurality of discrete tones [0045], the code nulling weights to null out cross modulation [ 0046],

but Agee fails to teach the null is formed in a direction toward a mobile station, but does not null a particular mobile station which transmitted a second uplink signal, and the wherein the downlink array weight is provided according to transmission power control information for a plurality of mobile stations.

Other prior arts in below has been considered, but they fail to teach the above allowable features, for the null is formed in a direction toward a mobile station, but does not null a particular mobile station which transmitted a second uplink signal, and the wherein the downlink array weight is provided according to transmission power control information for a plurality of mobile stations.

**Lim (US 6,049,307)** teaches a radio communication system [Fig. 4-5] comprising an array antenna 510 in Fig. 5; when transmitting downlink signal, the beam control 590 adjusts

beam direction based in the comparison of each received signal intensity, with weights befit beam directions selected by the beam control [col. 3, lines 34-50; col. 5, lines 62-64, Fig. 5, steps 550, 580, 590, 520], but fails to teach the maximum beam in a direction of first uplink signal from one mobile station, and having a null in a direction of a mobile station other than said one of the plurality mobile stations which transmitted a second uplink signal received using said array antenna of a base station,

**Yun (US 6,463,295 B1)** teaches the downlink power control for transmitting from communication station to remoter user based on the determined weighting factor & estimated quality [ col. 6, lines 1-29].

**Bevan et al. (US 6,311,075 B1)** teaches the CDMA base station communicates with plurality of mobile stations using base station antenna array, and to receive plurality of uplink signals from mobile stations [col. 4, lines 30-49, Fig. 1], having down looking antenna DLA pattern for the close-in mobile [abstract].

**Kamel et al. (US 6,697,343 B1) & Scherzer (US 6,108,565)** are also considered but fail to teach the above allowable features.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles C. Chow whose telephone number is (571) 272-7889. The examiner can normally be reached on 8:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor,

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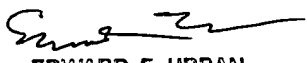
Edward Urban can be reached on (571) 272-7899. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information

about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Charles Chow 

February 17, 2006.

  
EDWARD F. URBAN  
SUPERVISORY PATENT EXAMINER  
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